

Kenji HORIUCHI et al.

Docket No. 011779

Sub B1 7
5. (Amended) A diode-structure diamond ultraviolet light-emitting device according to claim 1, wherein said n-type diamond crystal is a diamond crystal doped with phosphorous.

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6. (Amended) A diode-structure diamond ultraviolet light-emitting device according to claim 1, wherein said n-type diamond crystal is a diamond crystal doped with sulfur.

7. (Amended) A diode-structure diamond ultraviolet light-emitting device according to claim 1, wherein said n-type diamond crystal is a diamond crystal grown by a chemical vapor deposition method.

8. (Amended) A diode-structure diamond ultraviolet light-emitting device according to any one of claims 1 through 7, wherein said p-type semiconductor diamond crystal is a diamond crystal doped with boron.

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10. (Amended) A diode-structure diamond ultraviolet light-emitting device according to claim 1, wherein said p-type semiconductor diamond crystal is a crystal synthesized by a high temperature and high pressure synthesis method.

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12. (Amended) A diode-structure diamond ultraviolet light-emitting device according to claim 1, wherein said p-type semiconductor diamond crystal is a diamond crystal grown by a chemical vapor deposition method.

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13. (Amended) A diode-structure diamond ultraviolet light-emitting device according to claim 7, wherein said diamond crystal grown by the chemical vapor deposition method is a homoepitaxial film grown homoepitaxially on a diamond crystal substrate.

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14. (Amended) A diode-structure diamond ultraviolet light-emitting device according to claim 7, wherein said diamond crystal grown by chemical vapor deposition method is a diamond crystal film grown by the microwave plasma-assisted chemical vapor deposition method.

15. (Amended) A diode-structure diamond ultraviolet light-emitting device according to claim 1, said device comprising a p-type semiconductor diamond crystal synthesized by a high temperature and high pressure synthesis method, and a n-type diamond crystal grown on said p-type semiconductor diamond crystal by a chemical vapor deposition method.

16. (Amended) A diode-structure diamond ultraviolet light-emitting device according to claim 1, wherein a first diamond crystal grown by a chemical vapor deposition method is formed on a diamond substrate, and a second diamond crystal grown by a chemical vapor deposition method is further formed thereon.

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18. A diode-structure diamond ultraviolet light-emitting device according to claim 16, wherein said second diamond layer grown by the chemical vapor deposition method is grown selectively on said first diamond layer grown by the chemical vapor deposition method.

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19. (Amended) A diode-structure diamond ultraviolet light-emitting device according to claim 16, wherein an electrode is formed on the exposed surface of said first diamond layer grown by the chemical vapor deposition method.

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